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# ICC-ES Evaluation Report

# ESR-4045

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Reissued 01/2018  
This report is subject to renewal 01/2019.

**DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES**  
**SECTION: 06 50 00—STRUCTURAL PLASTICS**  
**SECTION: 06 53 00—PLASTIC DECKING**

**REPORT HOLDER:**

**TREX COMPANY, INC.**

**160 EXETER DRIVE  
WINCHESTER, VIRGINIA 22602**

**EVALUATION SUBJECT:**

**TREX® CONTOUR® DECKING**



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**DIVISION: 06 00 00—WOOD, PLASTICS AND COMPOSITES**

**Section: 06 50 00—Structural Plastics**

**Section: 06 53 00—Plastic Decking**

**REPORT HOLDER:**

**TREX COMPANY, INC.**  
160 EXETER DRIVE  
WINCHESTER, VIRGINIA 22602  
(540) 542-6300  
[www.trex.com](http://www.trex.com)

**EVALUATION SUBJECT:**

**TREX® CONTOUR® DECKING**

**1.0 EVALUATION SCOPE**

**1.1 Compliance with the following codes:**

- 2015 *International Building Code*® (IBC)
- 2015 *International Residential Code*® (IRC)

**Properties evaluated:**

- Structural
- Durability
- Surface-burning characteristics

**1.2 Evaluation to the following green code(s) and/or standards:**

- 2016 California Green Building Standards Code (CALGreen), Title 24, Part 11
- 2015, 2012 and 2008 ICC 700 *National Green Building Standard*™ (ICC 700-2015, ICC 700-2012 and ICC 700-2008)

**Attributes verified:**

See Section 3.1

**2.0 USES**

Trex® Contour® Decking is for use as deck boards for exterior balconies, porches, decks, stair treads and other exterior walking surfaces of Type V-B (IBC) construction, and in structures constructed in accordance with the IRC.

**3.0 DESCRIPTION**

**3.1 General:**

Trex® Contour® Decking is wood thermoplastic composite lumber (WTCL) deck boards, with an integrated shell that covers the boards on the top surface and sides. The underside of the deck boards is not covered by the integrated shell. The integrated shell consists of a

proprietary surface formulation that produces a natural, wood-like grain pattern finish. The deck boards are made from approximately 50 percent wood fiber and 50 percent polyethylene by weight, and are alternatives to preservative-treated or naturally durable lumber. Trex® Contour® Decking is manufactured by a continuous extrusion process, and is available in various colors, sizes, and textures per each product as described in Sections 3.1.1 and 3.1.2. The Trex® Hideaway® hidden fastening system is described in Section 3.1.3.

The attributes of the Trex® Contour® deck boards have been verified as conforming to the provisions of (i) CALGreen Section A5.406.1.2 for reduced maintenance; (ii) ICC 700-2015 and ICC 700-2012 Section 602.1.6 and 11.602.1.6 for termite-resistance materials and Section 601.7, 11.601.7, and 12.1(A).601.7 for site-applied finishing materials; and (iii) ICC 700-2008 Section 6.2.8 for termite-resistant materials and Section 601.7 for site-applied finishing materials. Note that decisions on compliance for those areas rest with the user of this report. The user is advised of the project-specific provisions that may be contingent upon meeting specific conditions, and the verification of those conditions is outside the scope of this report. These codes or standards often provide supplemental information as guidance. See Sections 3.2 and 5.3 for limitations on termite-resistance use.

**3.1.1 Trex® Contour® Decking:** Trex® Contour® deck boards are available in 3 colors: Torino Brown, Honey Brown, and Pebble Grey. Trex® Contour® deck boards have square-edge and grooved-edge profiles. The square-edge deck boards are nominally 1-inch thick by 5½-inches wide (25 mm by 140 mm) and the grooved-edge deck boards are nominally 1-inch thick by 5½-inches wide (25 mm by 140 mm). See Figure 1 for profiles and dimensions of Contour® decking.

**3.1.2 Trex® Hideaway® Hidden Fastening System:** The hidden fastener system is designed specifically for Trex® Contour® deck boards and consists of a start clip (stainless steel) and a plastic universal clip and No. 8 by 2-inch-long (51 mm) stainless steel trim head screw. See Figure 2 for the profile and dimensions of the universal clip.

**3.2 Durability:**

When subjected to weathering, insect attack and other decaying elements, the deck board material is equivalent in durability to preservative-treated or naturally durable lumber. Accordingly, the material is permitted to be used as an alternative to preservative-treated or naturally durable lumber on exterior decks, porches, balconies and stair treads, as applicable. The deck board and fascia have been evaluated for use in ambient air temperatures between -20°F (-29°C) and 125°F (52°C).

### 3.3 Surface-burning Characteristics:

When tested in accordance with ASTM E84, Trex® Contour® deck boards have a flame-spread index no greater than 200.

## 4.0 DESIGN AND INSTALLATION

**4.1 Design:** The allowable load and the maximum spans for Trex® Contour® deck boards are given in Table 1.

### 4.2 Installation:

**4.2.1 Deck Boards:** The deck boards may be installed perpendicular or at an angle to the supporting structure at the maximum joist spacing listed in Table 1. The deck boards must be installed with spacing at edges and ends in accordance with the manufacturer's published installation instructions.

**4.2.2 Deck Boards Used as Stair Treads:** The deck boards, when used as stair treads, are sufficient to resist the code-prescribed concentrated load of 300 lbf (1.33 kN) when installed at a maximum center-to-center spacing as indicated in Table 2.

**4.2.3 Deck Board Fasteners:** When deck boards are installed perpendicular to the supporting construction with the Trex® Hideaway® Hidden Fastening Systems described in Section 3.1.3, have an uplift rating of 100 psf (4788 Pa) up to a maximum span of 16 inches (406 mm) when installed at each support.

## 5.0 CONDITIONS OF USE

The Trex® Contour® deck boards described in this evaluation report comply with, or are suitable alternatives to what is specified in, those codes listed in Section 1.0 of this report, subject to the following conditions:

- 5.1 The deck boards are limited to exterior use as deck boards for balconies, porches, decks and stair treads of Type V-B (IBC) construction and structures constructed in accordance with the IRC.
- 5.2 Installation must comply with this evaluation report, the manufacturer's published instructions and the applicable code. When the manufacturer's published installation instructions differ from this report, this report governs.

5.3 The deck boards have not been evaluated for use in area subject to Formosan termite attack, unless data in accordance with Section 3.9 of ICC-ES AC174, showing resistance to Formosan termites, is submitted.

5.4 The use of the deck boards as a component of a fire-resistance-rated assembly is outside the scope of this report.

5.5 The compatibility of the fasteners with the supporting construction, including chemically treated wood, is outside the scope of this report.

5.6 The deck boards must be directly fastened to supporting construction. Where required by the code official, engineering calculations and construction documents consistent with this report must be submitted for approval. The calculations must verify that the supporting construction complies with the applicable building code requirements and is adequate to resist the loads imparted upon it from the products and systems discussed in this report. The documents must contain details of the attachment to the supporting structure consistent with the requirements of this report. The documents must be prepared by a registered design professional where required by the statutes of the jurisdiction in which the project is to be constructed.

5.7 The deck boards are produced in Winchester, Virginia, and Fernley, Nevada, under a quality-control program with inspections by ICC-ES.

## 6.0 EVIDENCE SUBMITTED

6.1 Data in accordance with applicable portions of the ICC-ES Acceptance Criteria for Deck Board Span Ratings and Guardrail Systems (AC174), dated January 2012 (editorially revised December 2014).

## 7.0 IDENTIFICATION

The deck boards described in this report must be identified by a label on the packaging bearing the Trex Company, Inc., name and address, the product name and the evaluation report number (ESR-4045).

TABLE 1—DECK BOARD SPAN RATING

| DECK BOARD                                 | ANGLE WITH RESPECT TO JOIST (degrees) | MAXIMUM SPAN <sup>1</sup> (inches) | ALLOWABLE CAPACITY <sup>2</sup> (lb/ft <sup>2</sup> ) |
|--|---------------------------------------|------------------------------------|---|
| Contour <sup>®</sup> 1-by-5.5 Grooved-edge | 30                                    | 8                                  | 100   |
| Contour <sup>®</sup> 1-by-5.5 Grooved-edge | 45                                    | 12                                 | 100   |
| Contour <sup>®</sup> 1-by-5.5 Grooved-edge | 60                                    | 14                                 | 100   |
| Contour <sup>®</sup> 1-by-5.5 Grooved-edge | 90                                    | 16                                 | 100   |
| Contour <sup>®</sup> 1-by-5.5 Square-edge  | 30                                    | 8                                  | 100   |
| Contour <sup>®</sup> 1-by-5.5 Square-edge  | 45                                    | 12                                 | 100   |
| Contour <sup>®</sup> 1-by-5.5 Square-edge  | 60                                    | 14                                 | 100   |
| Contour <sup>®</sup> 1-by-5.5 Square-edge  | 90                                    | 16                                 | 100   |

For SI: 1 inch = 25.4 mm; 1 lb/ft<sup>2</sup> = 47.9 Pa.

<sup>1</sup>Maximum span is measured center-to-center of the supporting construction.

<sup>2</sup>Maximum allowable capacity is adjusted for durability. No further increases are permitted.

TABLE 2—MAXIMUM STAIR TREAD SPANS<sup>2</sup>

| DECK BOARD  | MAXIMUM SPAN (inches) <sup>1</sup> |
|---|------------------------------------|
| Contour <sup>®</sup> 1-by-5.5 Grooved-edge or square-edge | 11                                 |

For SI: 1 inch = 25.4 mm; 1 lb/ft<sup>2</sup> = 47.9 Pa.

<sup>1</sup>Maximum span is measured center-to-center of the supporting construction.

<sup>2</sup>Based on a minimum two-span installation.

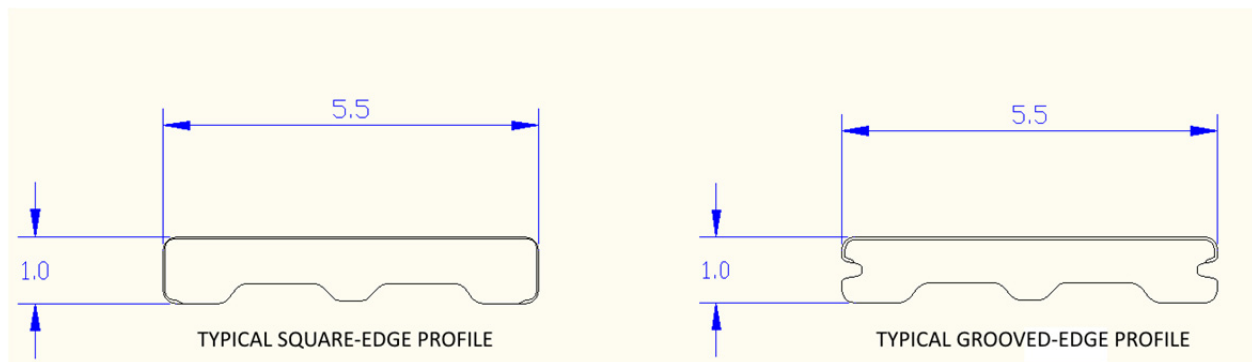


FIGURE 1—TYPICAL TREX<sup>®</sup> CONTOUR<sup>®</sup> DECK BOARD PROFILES

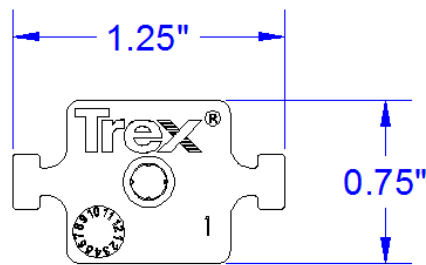


FIGURE 2—HIDDEN FASTENER PROFILE

For SI: 1 inch = 25.4 mm.